

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN A. BENDA and
ARISTOTLE PARASCO

Appeal No. 2005-0783
Application 10/039,094

MAILED

MAR 21 2005

PAT & TM OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

BRIEF

Before CAROFF, KIMLIN, and DELMENDO, Administrative Patent Judges.

CAROFF, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1-10 and 21-30. Subsequent to the final rejection, the examiner withdrew his rejection as to claims 21-22 in an advisory action mailed April 13, 2004.¹ Accordingly, the

¹ Claims 21-22 were rejected solely under 35 U.S.C. § 112, (continued...)

claims before us for consideration on appeal are claims 1-10 and 23-30.

The appealed claims relate to a method of forming a grating on an optical fiber. The method involves the use of two laser beams which are respectively directed on two circumferentially displaced localities of the optical fiber.

Claim 1, which is one of two independent claims, is illustrative of the subject matter encompassed by appellants' claims:

1. A method of optical fiber manufacture comprising the steps of:

A) directing a first laser beam on a first locality of an optical fiber having a circumference and extending along an axis;

B) directing a second laser beam on a second locality of the optical fiber circumferentially displaced from the first locality, wherein the second locality is also displaced from the first locality along the axis of the optical fiber; and

C) forming a grating on the optical fiber.

¹(...continued)
first paragraph, and that rejection was withdrawn in the advisory action.

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The prior art references relied upon by the examiner are:

Prast et al. (Prast)	5,176,731	Jan. 5, 1993
Nakai et al. (Nakai)	5,996,375	Dec. 7, 1999
Byron	5,694,502	Dec. 2, 1997
Kim et al. (Kim '342)	6,430,342	Aug. 6, 2002
Bernstein et al. (Bernstein)	6,509,547	Jan. 21, 2003
Kim (Kim '881)	6,501,881	Dec. 31, 2002

The following seven rejections are before us for review:

1. Claim 23 stands rejected under 35 U.S.C. § 112, second paragraph, for indefiniteness.
2. Claims 1, 3, and 5 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Byron.
3. Claims 1, 3, 5 and 23 stand rejected under 35 U.S.C. § 103(a) for obviousness in view of Byron.
4. Claim 4 stands rejected under 35 U.S.C. § 103(a) for obviousness in view of Byron taken in combination with Bernstein.
5. Claims 1-3 stand rejected under 35 U.S.C. § 103(a) for obviousness in view of Kim '881.
6. Claims 1-2 and 6-10 stand rejected under 35 U.S.C. § 103(a) for obviousness in view of Prast and Nakai.
7. Claims 1, 4 and 24-30 stand rejected under 35 U.S.C. § 103(a) for obviousness in view of Kim '342.

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We have carefully considered the entire record in light of the opposing positions taken by the appellants and by the examiner. Having done so, we shall affirm all of the rejections at issue except for rejection (5) which is reversed. The basis for our decision is as follows:

Rejection (1)

Appellants indicate in their brief (p.6) that the instant rejection is not contested and is accepted as proper. Accordingly, the instant rejection is summarily affirmed.

Rejection (2)

This rejection is affirmed.

Initially, we note that the claims subject to the rejection at issue have not been separately argued. Thus, those claims stand or fall together for purposes of this appeal. Accordingly, we limit our consideration to claim 1 in reviewing this rejection.

Byron shows the use of two laser beams for generating a grating on an optical fiber waveguide. The beams are respectively directed at two circumferentially displaced portions of the optical fiber.

The principal point of contention concerns the scope of the term "locality" appearing in claim 1. Since appellants' specification ascribes no special definition to the term, we agree

with the examiner that the term, broadly construed, places no limitation on the axial extent of the region or portion of the fiber included within the "locality". Thus, any portion of the fiber exposed to laser beam 11 of Byron can be considered a "first locality". With this construction in mind, it is evident that, in Byron (Fig. 1), the portion of the fiber (the second locality) exposed to laser beam 14 is both circumferentially and axially displaced from at least the left-most portion of the optical fiber illuminated by the line of light from focused laser beam 11.

Moreover, we note that Byron employs a phase grating mask 13 which apparently breaks up incident laser beam 11 to form a fringe pattern of light, viz. the line of light from focused beam 11 apparently is broken up into separate segments by the mask. Therefore, it can be concluded that the point at which beam 14 impinges upon the fiber is both circumferentially and axially displaced relative to at least some of the segments of light impinging upon the fiber from laser beam 11.

Rejection (3)

This rejection is also affirmed.

The claims subject to the instant rejection have not been separately argued. Thus, those claims stand or fall together for purposes of this appeal, and we again limit our consideration to claim 1.

The instant rejection is based on less than convincing reasoning (see the discussion of rejection (5), *infra*). Nevertheless, it is axiomatic that anticipation is the epitome of obviousness. Thus, a holding of obviousness follows from our previous conclusion that claim 1 is anticipated by Byron.

Rejection (4)

This rejection is affirmed.

The examiner cites Bernstein as showing that a laser can be used to remove a protective layer from an optical fiber. According to the examiner, it would have been obvious within the meaning of 35 U.S.C. § 103 to provide the Byron fiber with a protective layer to obtain the benefits taught by Bernstein, and subsequently remove the layer (i.e. "deforming" the optical fiber), as also suggested by Bernstein, as a precursor step to forming a grating. In outlining this rationale, the examiner presupposes that the "deforming" step of claim 4 can be read as separate and distinct from the step of forming the grating. We disagree. As we interpret the claim, the recited deforming step must be a step which forms the grating. To this extent we agree with the appellants.

However, in our view Bernstein is superfluous to the rejection since Byron forms a Bragg grating. According to appellants' specification (page 1), a Bragg grating generally comprises "a

periodic variation in the fiber's physical state, such as an alteration in the index of refraction or ablation or removal of portions of the fiber." Thus, appellants apparently concede that deformation is inherent in the formation of a Bragg grating as in Byron.

Rejection (5)

This rejection is reversed.

The examiner concedes that Kim '881 does not show the axial displacement of two laser beams along an optical fiber. Kim '881 (Fig. 5) merely shows laser beams that strike the fiber at circumferentially displaced locations.

According to the examiner, the claim requirement for axial displacement would be satisfied if the Kim process were repeated at another location along the fiber axis, and that it would have been obvious to do so to form an additional grating.

The examiner has failed to establish a prima facie case of obviousness since the cited reference fails to teach or suggest a need for forming additional gratings along the fiber axis. Nor has the examiner provided any other evidentiary basis to establish that a person of ordinary skill in the art would have been motivated to form a plurality of gratings along the axis of an optical fiber.

Rejection (6)

This rejection is affirmed.

As noted by the examiner, Prast (Figs. 4, 5) suggests directing two circumferentially displaced laser beams at an optical fiber for purposes of performing measurements on the fiber as it is being manufactured. The beams are also directed toward the fiber at numerous axial locations along the fiber by virtue of the axial movement of the fiber relative to the measuring beams. In this regard, see Prast at col. 10, 1.37 - col. 11, 1.54 (Fig. 8). Nakai simply shows that a grating may be formed on an optical fiber.

We agree with the examiner that the collective teachings of Prast and Nakai render the claimed method obvious. In this case, the subject claims do not require that the grating is formed by the recited laser beams. Thus, the claims read on the separate operations of performing measurements on an optical fiber as it is being manufactured by using two laser beams (Prast) and, then, forming a grating on the fiber (Nakai).

Appellants' separate arguments relative to claims 7 and 8 have been satisfactorily addressed in the examiner's answer (pp. 10, 11. 16-17). Accordingly, we adopt the examiner's position as our own with regard to claims 7-8.

Rejection (7)

This rejection is affirmed.

Kim '342 discloses a method for forming a single-mode grating on an optical fiber by using a laser beam to deform the molecular structure of the portions of the fiber exposed to the beam (Kim: col. 1, ll. 58-67; Fig. 1).

As indicated by the examiner, Fig. 2 of Kim '342 suggests that a two-mode fiber grating may be fabricated by generating deformations, i.e. exposed portions 30', from opposite sides of the fiber so that the portions 30' are "asymmetrically formed along the fiber axis" (col. 2, ll. 2-9).

We agree with the examiner that one of ordinary skill in the art would have drawn a reasonable inference from the Kim disclosure (taken in conjunction with Fig. 2) that a second laser beam, circumferentially and axially displaced relative to the first beam, would be required on the other side of the fiber (relative to the side exposed in Fig. 1) to form the "two-mode" pattern of exposed regions shown in Fig. 2. Appellants have failed to present any convincing argument or evidence in rebuttal.

For the foregoing reasons, the decision of the examiner is affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED



MARC L. CAROFF)
Administrative Patent Judge)

Edward C. Kimlin)
EDWARD C. KIMLIN)
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Romulo H. Delmendo)
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